



SEQUENCE LISTING

<110> Soto, Ana M.
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Szelei, Jozsef

<120> A NOVEL ANDROGEN-INDUCED SUPPRESSOR OF CELL PROLIFERATION AND USES THEREOF

<130> MBI-008

<140> US 09/512,581
<141> 2000-02-24

<150> US 60/121,461
<151> 1999-02-24

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<170> PatentIn Ver. 2.0

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Ala Ser Asp Phe Leu Lys His Pro Gly Lys Asp Val Arg Leu Leu
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FEB 05 2003

TECH CENTER 1600/2900

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 Thr Glu Tyr Leu Lys Val Arg Ser His Asp Pro Glu Glu Ala Ile Arg
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Ala Glu Gly Cys Val Arg Glu Ile Thr Lys Lys Leu Gly Asn Pro Lys			
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Leu Ser Phe Thr His Pro Ile Ser Phe His Ser Ala Glu Thr Phe Glu			
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Val Thr Ile Gly His Ile Ala Leu Leu Ala Pro Asp Gln Phe Ala Ala			

770

775

780

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B /
B/
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Glu Tyr Leu Lys Val Arg Ser His Asp Pro Glu Glu Ala Ile Arg His
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Asp Val Ile Val Ser Ile Val Thr Ala Ala Lys Lys Asp Ile Leu Leu
370 375 380

Val Asn Asp His Leu Leu Asn Phe Val Arg Glu Arg Thr Leu Asp Lys
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770 775 780

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785 790 795 800

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980 985 990

Pro Tyr Thr Ile His Leu Leu Ala His Asp Pro Asp Tyr Val Lys Val
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Gln Asp Ile Glu Gln Leu Lys Asp Val Lys Glu Cys Leu Trp Phe Val
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Leu Glu Ile Leu Met Ala Lys Asn Glu Asn Asn Ser His Ala Phe Ile
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Arg Lys Met Val Glu Asn Ile Lys Gln Thr Lys Asp Ala Gln Gly Pro
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Thr Pro Gly Lys Pro Lys Thr Thr Asn Val Leu Gly Ala Val Asn Lys
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Gln Asn Ser Pro Pro Lys Lys Gly Lys Arg Gly Arg Pro Pro Lys Pro
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Leu Gly Gly Thr Pro Lys Glu Glu Pro Thr Met Lys Thr Ser Lys
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Gln His Arg Val Ser Arg Arg Ala Gln Gln Arg Ala Glu Ser Pro Glu
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Pro Gly Val Lys Glu Ile Ser Asp Lys Ile Ser Lys Glu Glu Met Val
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Arg Arg Leu Lys Met Val Val Lys Thr Phe Met Asp Met Asp Gln Asp
35 40 45

tct gaa gaa gaa aag gag ctt tat tta aac cta gct tta cat ctt gct 192
Ser Glu Glu Glu Lys Glu Leu Tyr Leu Asn Leu Ala Leu His Leu Ala
50 55 60

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Ser Asp Phe Phe Leu Lys His Pro Gly Lys Asp Val Arg Leu Leu Val
65 70 75 80

gcc tgc tgc ctt gct gat att ttc agg att tat gct cct gaa gct cct 288
Ala Cys Cys Leu Ala Asp Ile Phe Arg Ile Tyr Ala Pro Glu Ala Pro
85 90 95

tac aca tcc cct gat aaa cta aag gat ata ttt atg ttt ata aca aga 336
Tyr Thr Ser Pro Asp Lys Leu Lys Asp Ile Phe Met Phe Ile Thr Arg
100 105 110

cag ttg aag ggg cta gag gat aca aag agc cca caa ttc aat agg tat 384
Gln Leu Lys Gly Leu Glu Asp Thr Lys Ser Pro Gln Phe Asn Arg Tyr
115 120 125

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Phe Tyr Leu Leu Glu Asn Ile Ala Trp Val Lys Ser Tyr Asn Ile Cys
130 135 140

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Phe Glu Leu Glu Asp Ser Asn Glu Ile Phe Thr Gln Leu Tyr Arg Thr
145 150 155 160

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Leu Phe Ser Val Ile Asn Asn Gly His Asn Gln Lys Val His Met His
165 170 175

atg gta gac ctt atg agc tct att att tgt gaa ggt gat aca gtg tct 576
Met Val Asp Leu Met Ser Ser Ile Ile Cys Glu Gly Asp Thr Val Ser
180 185 190

cag gag ctt ttg gat acg gtt tta gta aat ctg gta cct gct cat aag 624
Gln Glu Leu Leu Asp Thr Val Leu Val Asn Leu Val Pro Ala His Lys
195 200 205

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210 215 220

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225 230 235 240

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Leu Met Leu Gly Lys Thr Ser Ile Ser Asp Leu Ser Glu His Val Phe
245 250 255

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Asp Leu Ile Leu Glu Leu Tyr Asn Ile Asp Ser His Leu Leu Ser
260 265 270

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275 280 285

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agg ttt aat gat atc cat gta cca atc cgc ctg gaa tgt gtg aaa ttt 1008
Arg Phe Asn Asp Ile His Val Pro Ile Arg Leu Glu Cys Val Lys Phe
325 330 335

gct agc cat tgt ctc atg aac cat cct gat tta gca aaa gac tta aca 1056
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Asp Val Ile Val Ser Ile Val Thr Ala Ala Lys Lys Asp Ile Leu Leu
370 375 380

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Val Asn Asp His Leu Leu Asn Phe Val Arg Glu Arg Thr Leu Asp Lys
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 Arg Trp Arg Val Arg Lys Glu Ala Met Met Gly Leu Ala Gln Ile Tyr
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 Lys Lys Tyr Ala Leu Gln Ser Ala Ala Gly Lys Asp Ala Ala Lys Gln
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 Ile Ala Trp Ile Lys Asp Lys Leu Leu His Ile Tyr Tyr Gln Asn Ser
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 450 455 460

cct cac aat tta gaa act aca gaa cg^g atg aaa tgc tta tat tac ttg 1440
 Pro His Asn Leu Glu Thr Thr Glu Arg Met Lys Cys Leu Tyr Tyr Leu
 465 470 475 480

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 485 490 495

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B1
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ttc atg aag aaa ttc aca cag gtg tta gaa gat gat gag aaa ata aga 1680
 Phe Met Lys Lys Phe Thr Gln Val Leu Glu Asp Asp Glu Lys Ile Arg
 545 550 555 560

aag cag tta gaa gta ctt gtt agt cca aca tgc tcc tgc aag cag gct 1728
 Lys Gln Leu Glu Val Leu Val Ser Pro Thr Cys Ser Cys Lys Gln Ala
 565 570 575

gaa ggt tgt gtg cgt gaa ata act aag aag ttg ggc aac ccc aaa cag 1776
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 Pro Thr Asn Pro Phe Leu Glu Met Ile Lys Phe Leu Leu Glu Arg Ile
 595 600 605

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 Ala Pro Val His Ile Asp Thr Glu Ser Ile Ser Ala Leu Ile Lys Gln
 610 615 620

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Val Asn Lys Ser Ile Asp Gly Thr Ala Asp Asp Glu Asp Glu Gly Val
 625 630 635 640

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 Pro Thr Asp Gln Ala Ile Arg Ala Gly Leu Glu Leu Leu Lys Val Leu
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 Ser Phe Thr His Pro Ile Ser Phe His Ser Ala Glu Thr Phe Glu Ser
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tta ctg gct tgt ctg aaa atg gat gat gaa aaa gta gca gaa gct gca 2064
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 675 680 685

cta caa att ttc aaa aac aca gga agc aaa att gaa gag gat ttt cca 2112
 Leu Gln Ile Phe Lys Asn Thr Gly Ser Lys Ile Glu Glu Asp Phe Pro
 690 695 700

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 His Ile Arg Ser Ala Leu Leu Pro Val Leu His His Lys Ser Lys Lys
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 Gly Pro Pro Arg Gln Ala Lys Tyr Ala Ile His Cys Ile His Ala Ile
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 770 775 780

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 805 810 815

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 820 825 830

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 835 840 845

tct acc tta aga ttg cta aca aca ata ttg cat agt gat gga gac ttg 2592
 Ser Thr Leu Arg Leu Leu Thr Thr Ile Leu His Ser Asp Gly Asp Leu

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885	890	895	
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Glu Ile Ile Thr Leu Glu Gln Tyr Gln Leu Cys Ala Leu Ala Ile Asn			
900	905	910	
gat gaa tgc tat caa gta aga caa gtg ttt gcc cag aaa ctt cac aaa			2784
Asp Glu Cys Tyr Gln Val Arg Gln Val Phe Ala Gln Lys Leu His Lys			
915	920	925	
ggc ctt tcc cgt tta cgg ctt cca ctt gag tat atg gca atc tgt gcc			2832
Gly Leu Ser Arg Leu Arg Leu Pro Leu Glu Tyr Met Ala Ile Cys Ala			
930	935	940	
ctt tgt gca aaa gat cct gta aag gag aga aga gct cat gct agg caa			2880
Leu Cys Ala Lys Asp Pro Val Lys Glu Arg Arg Ala His Ala Arg Gln			
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Cys Leu Val Lys Asn Ile Asn Val Arg Arg Glu Tyr Leu Lys Gln His			
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gca gct gtt agt gaa aaa tta ttg tct ctt cta cca gag tat gtt gtt			2976
Ala Ala Val Ser Glu Lys Leu Leu Ser Leu Leu Pro Glu Tyr Val Val			
980	985	990	
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Pro Tyr Thr Ile His Leu Leu Ala His Asp Pro Asp Tyr Val Lys Val			
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Gln Asp Ile Glu Gln Leu Lys Asp Val Lys Glu Cys Leu Trp Phe Val			
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Asp Asp Ala Lys Met Asn Glu Lys Leu Tyr Thr Val Cys Asp Val Ala			
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<i>B/</i> agg aaa aaa acg ccc gtc aca gaa cag gag gag aaa tta ggt atg gat Arg Lys Lys Thr Pro Val Thr Glu Gln Glu Lys Leu Gly Met Asp 1220 1225 1230	3696
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agt cg ^g aaa aga ggc cat acg gct tca gaa tct gat gaa cag cag tgg Ser Arg Lys Arg Gly His Thr Ala Ser Glu Ser Asp Glu Gln Gln Trp 1250 1255 1260	3792
cct gag gaa aag agg ctc aaa gaa gat ata tta gaa aat gaa gat gaa Pro Glu Glu Lys Arg Leu Lys Glu Asp Ile Leu Glu Asn Glu Asp Glu 1265 1270 1275 1280	3840
cag aat agt ccg cca aaa aag ggt aaa aga ggc cga cca cca aaa cct Gln Asn Ser Pro Pro Lys Lys Gly Lys Arg Gly Arg Pro Pro Lys Pro 1285 1290 1295	3888
ctt ggt gga ggt aca cca aaa gaa gag cca aca atg aaa act tct aaa Leu Gly Gly Gly Thr Pro Lys Glu Glu Pro Thr Met Lys Thr Ser Lys 1300 1305 1310	3936

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1315	1320	1325	
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1330	1335	1340	
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Gln His Arg Val Ser Arg Arg Ala Gln Gln Arg Ala Glu Ser Pro Glu			
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1365	1370	1375	
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Met Ala His Ser Lys Thr Arg Thr			
1	5		
aat gat gga aaa att aca tat ccg cct ggg gtc aag gaa ata tca gat		221	
Asn Asp Gly Lys Ile Thr Tyr Pro Pro Gly Val Lys Glu Ile Ser Asp			
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aaa ata tct aaa gag gag atg gtg aga cga tta aag atg gtt gtg aaa		269	
Lys Ile Ser Lys Glu Glu Met Val Arg Arg Leu Lys Met Val Val Lys			
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act ttt atg gat atg gac cag gac tct gaa gaa aag gag ctt tat		317	
Thr Phe Met Asp Met Asp Gln Asp Ser Glu Glu Glu Lys Glu Leu Tyr			
45	50	55	
tta aac cta gct tta cat ctt gct tca gat ttt ttt ctc aag cat cct		365	
Leu Asn Leu Ala Leu His Leu Ala Ser Asp Phe Phe Leu Lys His Pro			
60	65	70	
ggt aaa gat gtt cgcc tta ctg gta gcc tgc tgc ctt gct gat att ttc		413	
Gly Lys Asp Val Arg Leu Leu Val Ala Cys Cys Leu Ala Asp Ile Phe			

75

80

85

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90	95	100	
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Asp Ile Phe Met Phe Ile Thr Arg Gln Leu Lys Gly Leu Glu Asp Thr			
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aag agc cca caa ttc aat agg tat ttt tat tta ctt gag aac att gct			557
Lys Ser Pro Gln Phe Asn Arg Tyr Phe Tyr Leu Leu Glu Asn Ile Ala			
125	130	135	
tgg gtc aag tca tat aac ata tgc ttt gag tta gaa gat agc aat gaa			605
Trp Val Lys Ser Tyr Asn Ile Cys Phe Glu Leu Glu Asp Ser Asn Glu			
140	145	150	
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Ile Phe Thr Gln Leu Tyr Arg Thr Leu Phe Ser Val Ile Asn Asn Gly			
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cac aat cag aaa gtc cat atg cac atg gta gac ctt atg agc tct att			701
His Asn Gln Lys Val His Met His Met Val Asp Leu Met Ser Ser Ile			
170	175	180	
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Ile Cys Glu Gly Asp Thr Val Ser Gln Glu Leu Leu Asp Thr Val Leu			
185	190	195	200
gta aat ctg gta cct gct cat aag aat tta aac aag caa gca tat gat			797
Val Asn Leu Val Pro Ala His Lys Asn Leu Asn Lys Gln Ala Tyr Asp			
205	210	215	
ttg gca aag gct tta ctg aag agg aca gct caa gct att gag cca tat			845
Leu Ala Lys Ala Leu Leu Lys Arg Thr Ala Gln Ala Ile Glu Pro Tyr			
220	225	230	
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Ile Thr Thr Phe Phe Asn Gln Val Leu Met Leu Gly Lys Thr Ser Ile			
235	240	245	
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Ser Asp Leu Ser Glu His Val Phe Asp Leu Ile Leu Glu Leu Tyr Asn			
250	255	260	
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Ile Asp Ser His Leu Leu Leu Ser Val Leu Pro Gln Leu Glu Phe Lys			
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Leu Lys Ser Asn Asp Asn Glu Glu Arg Leu Gln Val Val Lys Leu Leu			
285	290	295	
gca aaa atg ttt ggg gca aag gat tca gaa ttg gct tct caa aac aag			1085
Ala Lys Met Phe Gly Ala Lys Asp Ser Glu Leu Ala Ser Gln Asn Lys			
300	305	310	

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 315 320 325

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 Ile Arg Leu Glu Cys Val Lys Phe Ala Ser His Cys Leu Met Asn His
 330 335 340

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 Pro Asp Leu Ala Lys Asp Leu Thr Glu Tyr Leu Lys Val Arg Ser His
 345 350 355 360

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 Asp Pro Glu Glu Ala Ile Arg His Asp Val Ile Val Ser Ile Val Thr
 365 370 375

 gct gct aaa aag gat att ctt ctg gtc aat gat cac tta ctt aat ttt 1325
 Ala Ala Lys Lys Asp Ile Leu Leu Val Asn Asp His Leu Leu Asn Phe
 380 385 390

 gtg aga gag aga aca tta gac aaa cga tgg aga gta cgc aaa gaa gcc 1373
 Val Arg Glu Arg Thr Leu Asp Lys Arg Trp Arg Val Arg Lys Glu Ala
 395 400 405

 atg atg gga ctt gcc caa att tat aag aaa tat gct tta cag tca gca 1421
 Met Met Gly Leu Ala Gln Ile Tyr Lys Tyr Ala Leu Gln Ser Ala
 410 415 420

B1
 gct gga aaa gat gct gca aaa cag ata gca tgg atc aaa gac aaa ttg 1469
 Ala Gly Lys Asp Ala Ala Lys Gln Ile Ala Trp Ile Lys Asp Lys Leu
 425 430 435 440

 cta cat ata tat tat caa aat agt att gat gat cga cta ctt gtt gaa 1517
 Leu His Ile Tyr Tyr Gln Asn Ser Ile Asp Asp Arg Leu Leu Val Glu
 445 450 455

 cgg atc ttt gct caa tac atg gtt cct cac aat tta gaa act aca gaa 1565
 Arg Ile Phe Ala Gln Tyr Met Val Pro His Asn Leu Glu Thr Thr Glu
 460 465 470

 cgg atg aaa tgc tta tat tac ttg tat gcc aca ctg gat tta aat gct 1613
 Arg Met Lys Cys Leu Tyr Tyr Ala Thr Leu Asp Leu Asn Ala
 475 480 485

 gtg aaa gca ttg aat gaa atg tgg aaa tgt caa aat ctg ctc cga cat 1661
 Val Lys Ala Leu Asn Glu Met Trp Lys Cys Gln Asn Leu Leu Arg His
 490 495 500

 caa gta aag gat ttg ctt gac ttg att aag caa ccc aaa aca gat gcc 1709
 Gln Val Lys Asp Leu Leu Asp Leu Ile Lys Gln Pro Lys Thr Asp Ala
 505 510 515 520

 agt gtc aag gcc ata ttt tca aaa gtg atg gtt att aca aga aat tta 1757
 Ser Val Lys Ala Ile Phe Ser Lys Val Met Val Ile Thr Arg Asn Leu
 525 530 535

cct gat cct ggt aag gct cag gat ttc atg aag aaa ttc aca cag gtg 1805
 Pro Asp Pro Gly Lys Ala Gln Asp Phe Met Lys Lys Phe Thr Gln Val
 540 545 550

tta gaa gat gat gag aaa ata aga aag cag tta gaa gta ctt gtt agt 1853
 Leu Glu Asp Asp Glu Lys Ile Arg Lys Gln Leu Glu Val Leu Val Ser
 555 560 565

cca aca tgc tcc tgc aag cag gct gaa ggt tgt gtg cgt gaa ata act 1901
 Pro Thr Cys Ser Cys Lys Gln Ala Glu Gly Cys Val Arg Glu Ile Thr
 570 575 580

aag aag ttg ggc aac ccc aaa cag cct aca aat cct ttc ctg gaa atg 1949
 Lys Lys Leu Gly Asn Pro Lys Gln Pro Thr Asn Pro Phe Leu Glu Met
 585 590 595 600

atc aag ttt ctc ttg gag agg ata gca cct gtg cac ata gat acc gaa 1997
 Ile Lys Phe Leu Leu Glu Arg Ile Ala Pro Val His Ile Asp Thr Glu
 605 610 615

tct atc agt gct ctt att aaa caa gtg aac aaa tca ata gat gga aca 2045
 Ser Ile Ser Ala Leu Ile Lys Gln Val Asn Lys Ser Ile Asp Gly Thr
 620 625 630

gca gat gat gaa gat gag ggt gtt cca act gat caa gcc atc aga gca 2093
 Ala Asp Asp Glu Asp Glu Gly Val Pro Thr Asp Gln Ala Ile Arg Ala
 635 640 645

ggt ctt gaa ctg ctt aag gta ctc tca ttt aca cat ccc atc tca ttt 2141
 Gly Leu Glu Leu Leu Lys Val Leu Ser Phe Thr His Pro Ile Ser Phe
 650 655 660

cat tct gct gaa aca ttt gaa tca tta ctg gct tgt ctg aaa atg gat 2189
 His Ser Ala Glu Thr Phe Glu Ser Leu Leu Ala Cys Leu Lys Met Asp
 665 670 675 680

gat gaa aaa gta gca gaa gct gca cta caa att ttc aaa aac aca gga 2237
 Asp Glu Lys Val Ala Glu Ala Ala Leu Gln Ile Phe Lys Asn Thr Gly
 685 690 695

agc aaa att gaa gag gat ttt cca cac atc aga tca gcc ttg ctt cct 2285
 Ser Lys Ile Glu Glu Asp Phe Pro His Ile Arg Ser Ala Leu Leu Pro
 700 705 710

gtt tta cat cac aaa tct aaa aaa gga ccc ccc cgt caa gcc aaa tat 2333
 Val Leu His His Lys Ser Lys Lys Gly Pro Pro Arg Gln Ala Lys Tyr
 715 720 725

gcc att cat tgt atc cat gcg ata ttt tct agt aaa gag acc cag ttt 2381
 Ala Ile His Cys Ile His Ala Ile Phe Ser Ser Lys Glu Thr Gln Phe
 730 735 740

gca cag ata ttt gag cct ctg cat aag agc cta gat cca agc aac ctg 2429
 Ala Gln Ile Phe Glu Pro Leu His Lys Ser Leu Asp Pro Ser Asn Leu
 745 750 755 760

gaa cat ctc ata aca cca ttg gtt act att ggt cat att gct ctc ctt 2477

Glu His Leu Ile Thr Pro Leu Val Thr Ile Gly His Ile Ala Leu Leu
 765 770 775
 gca cct gat caa ttt gct gct cct tgg aaa tct tgg gta gct act ttc 2525
 Ala Pro Asp Gln Phe Ala Ala Pro Trp Lys Ser Trp Val Ala Thr Phe
 780 785 790
 att gtg aaa gat ctt ctc atg aat gat cgg ctt cca ggg aaa aag aca 2573
 Ile Val Lys Asp Leu Leu Met Asn Asp Arg Leu Pro Gly Lys Lys Thr
 795 800 805
 act aaa ctt tgg gtt cca gat gaa gaa gta tct cct gag aca atg gtc 2621
 Thr Lys Leu Trp Val Pro Asp Glu Glu Val Ser Pro Glu Thr Met Val
 810 815 820
 aaa att cag gct att aaa atg atg gtt cga tgg cta ctt gga atg aaa 2669
 Lys Ile Gln Ala Ile Lys Met Met Val Arg Trp Leu Leu Gly Met Lys
 825 830 835 840
 aat aat cac agt aaa tca gga act tct acc tta aga ttg cta aca aca 2717
 Asn Asn His Ser Lys Ser Gly Thr Ser Thr Leu Arg Leu Leu Thr Thr
 845 850 855
 ata ttg cat agt gat gga gac ttg aca gaa cag ggg aaa att agt aaa 2765
 Ile Leu His Ser Asp Gly Asp Leu Thr Glu Gln Gly Lys Ile Ser Lys
 860 865 870
 cca gat atg tca cgt ctg aga ctt gct gct ggg agt gct att gtg aag 2813
 Pro Asp Met Ser Arg Leu Arg Leu Ala Ala Gly Ser Ala Ile Val Lys
 875 880 885
 ctg gca caa gaa ccc tgt tac cat gaa atc atc aca tta gaa caa tat 2861
 Leu Ala Gln Glu Pro Cys Tyr His Glu Ile Ile Thr Leu Glu Gln Tyr
 890 895 900
 cag cta tgt gca tta gct atc aac gat gaa tgc tat caa gta aga caa 2909
 Gln Leu Cys Ala Leu Ala Ile Asn Asp Glu Cys Tyr Gln Val Arg Gln
 905 910 915 920
 gtg ttt gcc cag aaa ctt cac aaa ggc ctt tcc cgt tta cgg ctt cca 2957
 Val Phe Ala Gln Lys Leu His Lys Gly Leu Ser Arg Leu Arg Leu Pro
 925 930 935
 ctt gag tat atg gca atc tgt gcc ctt tgt gca aaa gat cct gta aag 3005
 Leu Glu Tyr Met Ala Ile Cys Ala Leu Cys Ala Lys Asp Pro Val Lys
 940 945 950
 gag aga aga gct cat gct agg caa tgt ttg gtg aaa aat ata aat gta 3053
 Glu Arg Arg Ala His Ala Arg Gln Cys Leu Val Lys Asn Ile Asn Val
 955 960 965
 agg cgg gag tat ctg aag cag cat gca gct gtt agt gaa aaa tta ttg 3101
 Arg Arg Glu Tyr Leu Lys Gln His Ala Ala Val Ser Glu Lys Leu Leu
 970 975 980
 tct ctt cta cca gag tat gtt gtt cca tat aca att cac ctt ttg gca 3149
 Ser Leu Leu Pro Glu Tyr Val Val Pro Tyr Thr Ile His Leu Leu Ala

985	990	995	1000	
cat gac cca gat tat gtc aaa gta cag gat att gaa caa ctt aaa gat His Asp Pro Asp Tyr Val Lys Val Gln Asp Ile Glu Gln Leu Lys Asp 1005		1010		1015
gtt aaa gaa tgt ctt tgg ttt gtt ctg gaa ata tta atg gct aaa aat Val Lys Glu Cys Leu Trp Phe Val Leu Glu Ile Leu Met Ala Lys Asn 1020	1025		1030	3245
gaa aat aac agt cac gct ttt atc aga aag atg gta gaa aat att aaa Glu Asn Asn Ser His Ala Phe Ile Arg Lys Met Val Glu Asn Ile Lys 1035	1040		1045	3293
caa aca aaa gat gcc caa gga cca gat gat gca aaa atg aat gaa aaa Gln Thr Lys Asp Ala Gln Gly Pro Asp Asp Ala Lys Met Asn Glu Lys 1050	1055	1060		3341
ctg tac act gtg tgt gat gtt gcc atg aat atc atc atg tca aag agt Leu Tyr Thr Val Cys Asp Val Ala Met Asn Ile Ile Met Ser Lys Ser 1065	1070	1075	1080	3389
act aca tac agt ttg gaa tct cct aaa gac ccg gta cta cca gct cgt Thr Thr Tyr Ser Leu Glu Ser Pro Lys Asp Pro Val Leu Pro Ala Arg 1085	1090		1095	3437
ttc ttc act caa cct gac aag aat ttc agt aac acc aaa aat tat ctg Phe Phe Thr Gln Pro Asp Lys Asn Phe Ser Asn Thr Lys Asn Tyr Leu 1100	1105		1110	3485
cct cct gaa atg aaa tca ttt ttc act cct gga aaa cct aaa aca acc Pro Pro Glu Met Lys Ser Phe Phe Thr Pro Gly Lys Pro Lys Thr Thr 1115	1120		1125	3533
<i>B1</i> aat gtt cta gga gct gtt aac aag cca ctt tca tca gca ggc aag caa Asn Val Leu Gly Ala Val Asn Lys Pro Leu Ser Ser Ala Gly Lys Gln 1130	1135	1140		3581
tct cag acc aaa tca tca cga atg gaa act gta agc aat gca agc agc Ser Gln Thr Lys Ser Ser Arg Met Glu Thr Val Ser Asn Ala Ser Ser 1145	1150	1155	1160	3629
agc tca aat cca agc tct cct gga aga ata aag ggg agg ctt gat agt Ser Ser Asn Pro Ser Ser Pro Gly Arg Ile Lys Gly Arg Leu Asp Ser 1165	1170		1175	3677
tct gaa atg gat cac agt gaa aat gaa gat tac aca atg tct tca cct Ser Glu Met Asp His Ser Glu Asn Glu Asp Tyr Thr Met Ser Ser Pro 1180	1185		1190	3725
ttg ccg ggg aaa aaa agt gac aag aga gac gac tct gat ctt gta agg Leu Pro Gly Lys Lys Ser Asp Lys Arg Asp Asp Ser Asp Leu Val Arg 1195	1200	1205		3773
tct gaa ttg gag aag cct aga ggc agg aaa aaa acg ccc gtc aca gaa Ser Glu Leu Glu Lys Pro Arg Gly Arg Lys Lys Thr Pro Val Thr Glu 1210	1215	1220		3821

cag gag gag aaa tta ggt atg gat gac ttg act aag ttg gta cag gaa 3869
 Gln Glu Glu Lys Leu Gly Met Asp Asp Leu Thr Lys Leu Val Gln Glu
 1225 1230 1235 1240

cag aaa cct aaa ggc agt cag cga agt cgg aaa aga ggc cat acg gct 3917
 Gln Lys Pro Lys Gly Ser Gln Arg Ser Arg Lys Arg Gly His Thr Ala
 1245 1250 1255

tca gaa tct gat gaa cag cag tgg cct gag gaa aag agg ctc aaa gaa 3965
 Ser Glu Ser Asp Glu Gln Gln Trp Pro Glu Glu Lys Arg Leu Lys Glu
 1260 1265 1270

gat ata tta gaa aat gaa gat gaa cag aat agt ccg cca aaa aag ggt 4013
 Asp Ile Leu Glu Asn Glu Asp Glu Gln Asn Ser Pro Pro Lys Lys Gly
 1275 1280 1285

aaa aga ggc cga cca cca aaa cct ctt ggt gga ggt aca cca aaa gaa 4061
 Lys Arg Gly Arg Pro Pro Lys Pro Leu Gly Gly Thr Pro Lys Glu
 1290 1295 1300

gag cca aca atg aaa act tct aaa aaa gga agc aaa aaa aaa tct gga 4109
 Glu Pro Thr Met Lys Thr Ser Lys Lys Gly Ser Lys Lys Ser Gly
 1305 1310 1315 1320

cct cca gca cca gag gag gaa gaa gaa aga caa agt gga aat 4157
 Pro Pro Ala Pro Glu Glu Glu Glu Arg Gln Ser Gly Asn
 1325 1330 1335

acg gaa cag aag tcc aaa agc aaa cag cac cga gtg tca agg aga gca 4205
 Thr Glu Gln Lys Ser Lys Lys Gln His Arg Val Ser Arg Arg Ala
 1340 1345 1350

B/
 cag cag aga gca gaa tct cct gaa tct agt gca att gaa tcc aca cag 4253
 Gln Gln Arg Ala Glu Ser Pro Glu Ser Ser Ala Ile Glu Ser Thr Gln
 1355 1360 1365

tcc aca cca cag aaa gga cga gga aga cca tca aaa acg cca tca cca 4301
 Ser Thr Pro Gln Lys Gly Arg Gly Arg Pro Ser Lys Thr Pro Ser Pro
 1370 1375 1380

tca caa cca aaa aaa aat gtg taagttgtaa atattacatt tcaaaccatat 4352
 Ser Gln Pro Lys Lys Asn Val
 1385 1390

ttcaaaattat tttgcaaaaag ttcctaaatt tgtaaacata catattgctg tatttaaatt 4412

ccatatatattt agccccatta cactaggtac ggcggcgaag tgctaaaagg gaacggcgat 4472

gaacaaaatgt aattaataac tttctctgtg aaagcttgg aaaaatctt tttttttttt 4532

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tgtactgaat tctttatccc attttatcat ctttcagtt tttattaatc tactgtatca 5312
ataaaattct gtaatttgc tgtagaaaaaaa aaaaaaaaaaaa aaa 5355

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<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: consensus sequence

B1
B2
<400> 5
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18

<210> 6
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: motif

<400> 6

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1 5 10 15

<210> 7
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<213> Homo sapiens

<220>
<221> CDS
<222> (66)...(4241)

<400> 7

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ctgtc atg gct cat tca aag act agg acc aat gat gga aaa att aca tat 110
Met Ala His Ser Lys Thr Arg Thr Asn Asp Gly Lys Ile Thr Tyr
1 5 10 15

ccg cct ggg gtc aag gaa ata tca gat aaa ata tct aaa gag gag atg 158
Pro Pro Gly Val Lys Glu Ile Ser Asp Lys Ile Ser Lys Glu Glu Met
20 25 30

gtg aga cga tta aag atg gtt gtg aaa act ttt atg gat atg gac cag 206
Val Arg Arg Leu Lys Met Val Val Lys Thr Phe Met Asp Met Asp Gln
35 40 45

gac tct gaa gaa gaa aag gag ctt tat tta aac cta gct tta cat ctt 254
Asp Ser Glu Glu Glu Lys Glu Leu Tyr Leu Asn Leu Ala Leu His Leu
50 55 60

gct tca gat ttt ttt ctc aag cat cct gat aaa gat gtt cgc tta ctg 302
Ala Ser Asp Phe Phe Leu Lys His Pro Asp Lys Asp Val Arg Leu Leu
65 70 75

gta gcc tgc tgc ctt gct gat att ttc agg att tat gct cct gaa gct 350
Val Ala Cys Cys Leu Ala Asp Ile Phe Arg Ile Tyr Ala Pro Glu Ala
80 85 90 95

cct tac aca tcc cct gat aaa cta aag gat ata ttt atg ttt ata aca 398
Pro Tyr Thr Ser Pro Asp Lys Leu Lys Asp Ile Phe Met Phe Ile Thr
100 105 110

aga cag ttg aag ggg cta gag gat aca aag agc cca cag ttc aat agg 446
Arg Gln Leu Lys Gly Leu Glu Asp Thr Lys Ser Pro Gln Phe Asn Arg
115 120 125

tat ttt tat ttg ctt gag aac att gct tgg gtc aag tca tat aac ata 494
Tyr Phe Tyr Leu Leu Glu Asn Ile Ala Trp Val Lys Ser Tyr Asn Ile
130 135 140

tgc ttt gag tta gaa gat agc aat gaa att ttc acc cac cta tac aga 542
Cys Phe Glu Leu Glu Asp Ser Asn Glu Ile Phe Thr Gln Leu Tyr Arg
145 150 155

acc tta ttt tca gtt ata aac aat ggc cac aat cag aaa gtc cat atg 590
Thr Leu Phe Ser Val Ile Asn Asn Gly His Asn Gln Lys Val His Met
160 165 170 175

cac atg gta gac ctt atg agc tct att att tgt gaa ggt gat aca gtc 638
His Met Val Asp Leu Met Ser Ser Ile Ile Cys Glu Gly Asp Thr Val
180 185 190

tct cag gag ctt ttg gat acg gtt tta gta aat ctg gta cct gct cat 686
Ser Gln Glu Leu Leu Asp Thr Val Leu Val Asn Leu Val Pro Ala His
195 200 205

aag aat tta aac aag caa gca tat gat ttg gca aag gct tta ctg aag 734
Lys Asn Leu Asn Lys Gln Ala Tyr Asp Leu Ala Lys Ala Leu Leu Lys

210

215

220

agg aca gct caa gct att gag cca tat att acc aat ttt ttt aat cag			782
Arg Thr Ala Gln Ala Ile Glu Pro Tyr Ile Thr Asn Phe Phe Asn Gln			
225	230	235	
gtt ctg atg ctt ggg aaa aca tct atc agc gat ttg tca gag cat gtc			830
Val Leu Met Leu Gly Lys Thr Ser Ile Ser Asp Leu Ser Glu His Val			
240	245	250	255
tct gac tta att ttg gag ctc tac aat att gat agt cat ttg ctg ctc			878
Ser Asp Leu Ile Leu Glu Leu Tyr Asn Ile Asp Ser His Leu Leu Leu			
260	265	270	
tct gtt tta ccc cag ctt gaa ttt aaa tta aag agc aat gat aat gag			926
Ser Val Leu Pro Gln Leu Glu Phe Lys Leu Lys Ser Asn Asp Asn Glu			
275	280	285	
gag cgc cta caa gtt gtt aaa cta ctg gcg aaa atg ttt ggg gca aag			974
Glu Arg Leu Gln Val Val Lys Leu Leu Ala Lys Met Phe Gly Ala Lys			
290	295	300	
gat tca gaa ttg gct tct caa aac aag cca ctt tgg cag tgc tac ttg			1022
Asp Ser Glu Leu Ala Ser Gln Asn Lys Pro Leu Trp Gln Cys Tyr Leu			
305	310	315	
ggc agg ttt aat gat atc cat gta cca atc cgc ctg gaa tgt gtg aaa			1070
Gly Arg Phe Asn Asp Ile His Val Pro Ile Arg Leu Glu Cys Val Lys			
320	325	330	335
ttt gct agc cat tgt ctc atg aac cat cct gat tta gca aaa gac tta			1118
Phe Ala Ser His Cys Leu Met Asn His Pro Asp Leu Ala Lys Asp Leu			
340	345	350	
aca gag tat ctt aaa gtg agg tca cat gac cct gag gaa gct att aga			1166
Thr Glu Tyr Leu Lys Val Arg Ser His Asp Pro Glu Glu Ala Ile Arg			
355	360	365	
cat gat gtt att gtg tca ata gtt aca gct gct aaa aag gat att ctt			1214
His Asp Val Ile Val Ser Ile Val Thr Ala Ala Lys Lys Asp Ile Leu			
370	375	380	
ctg gtc aat gat cac tta ctt aat ttt gtg gga gag aga aca tta gac			1262
Leu Val Asn Asp His Leu Leu Asn Phe Val Gly Glu Arg Thr Leu Asp			
385	390	395	
aaa cga tgg aga gta cgc aaa gaa gcc atg atg gga ctt gcc caa att			1310
Lys Arg Trp Arg Val Arg Lys Glu Ala Met Met Gly Leu Ala Gln Ile			
400	405	410	415
tat aag aaa tat gct tta cag tca gca gct gga aaa gat gct gca aaa			1358
Tyr Lys Tyr Ala Leu Gln Ser Ala Ala Gly Lys Asp Ala Ala Lys			
420	425	430	
cag ata gca tgg atc aaa gac aaa ttg cta cat ata tat tat caa aat			1406
Gln Ile Ala Trp Ile Lys Asp Lys Leu Leu His Ile Tyr Tyr Gln Asn			
435	440	445	

agt att gat gat cga cta ctt gtt gaa cgg atc ttt gct caa tac atg 1454
 Ser Ile Asp Asp Arg Leu Leu Val Glu Arg Ile Phe Ala Gln Tyr Met
 450 455 460

 gtt cct cac aat tta gaa act aca gaa cgg atg aaa tgc tta tat tac 1502
 Val Pro His Asn Leu Glu Thr Thr Glu Arg Met Lys Cys Leu Tyr Tyr
 465 470 475

 ttg tat gcc aca ctg gat tta aat gct gtg aaa gca ttg aat gaa atg 1550
 Leu Tyr Ala Thr Leu Asp Leu Asn Ala Val Lys Ala Leu Asn Glu Met
 480 485 490 495

 tgg aaa tgt caa aat ctg ctc cga cat caa gta aag gat ttg ctt gac 1598
 Trp Lys Cys Gln Asn Leu Leu Arg His Gln Val Lys Asp Leu Leu Asp
 500 505 510

 ttg att aag caa ccc aaa aca gat gcc agt gtc aag gcc ata ttt tca 1646
 Leu Ile Lys Gln Pro Lys Thr Asp Ala Ser Val Lys Ala Ile Phe Ser
 515 520 525

 aaa gtg atg gtt att aca aga agt tta cct gat cct ggt aag gct cag 1694
 Lys Val Met Val Ile Thr Arg Ser Leu Pro Asp Pro Gly Lys Ala Gln
 530 535 540

 gat ttc atg aag aaa ttc aca cag gtg tta gaa gat gat gag aaa ata 1742
 Asp Phe Met Lys Lys Phe Thr Gln Val Leu Glu Asp Asp Glu Lys Ile
 545 550 555

 aga aag cag tta gaa gta ctt gtt agt cca aca tgc tcc tgc aag cag 1790
 Arg Lys Gln Leu Glu Val Leu Val Ser Pro Thr Cys Ser Cys Lys Gln
 560 565 570 575

 gct gaa ggt tgt gtg cgt gaa ata act aag aag ttg ggc aac ccc aaa 1838
 Ala Glu Gly Cys Val Arg Glu Ile Thr Lys Lys Leu Gly Asn Pro Lys
 580 585 590

 cag cct aca aat cct ttc ctg gaa atg atc aag ttt ctc ttg gag agg 1886
 Gln Pro Thr Asn Pro Phe Leu Glu Met Ile Lys Phe Leu Leu Glu Arg
 595 600 605

 ata gca cct gtg cac ata gat acc gaa tct atc agt gct ctt att aaa 1934
 Ile Ala Pro Val His Ile Asp Thr Glu Ser Ile Ser Ala Leu Ile Lys
 610 615 620

 caa gtg aac aaa tca ata gat gga aca gca gat gat gaa gat gag ggt 1982
 Gln Val Asn Lys Ser Ile Asp Gly Thr Ala Asp Asp Glu Asp Glu Gly
 625 630 635

 gtt cca act gat caa gcc atc aga gca ggt ctt gaa ctg ctt aag gta 2030
 Val Pro Thr Asp Gln Ala Ile Arg Ala Gly Leu Glu Leu Leu Lys Val
 640 645 650 655

 ctc tca ttt aca cat ccc atc tca ttt cat tct gct gaa aca ttt gaa 2078
 Leu Ser Phe Thr His Pro Ile Ser Phe His Ser Ala Glu Thr Phe Glu
 660 665 670

tca tta ctg gcc tgt ctg aaa atg gat gat gaa aaa gta gca gaa gct 2126
 Ser Leu Leu Ala Cys Leu Lys Met Asp Asp Glu Lys Val Ala Glu Ala
 675 680 685

 gca cta caa att ttc aaa aac aca gga agc aaa att gaa gag gat ttt 2174
 Ala Leu Gln Ile Phe Lys Asn Thr Gly Ser Lys Ile Glu Glu Asp Phe
 690 695 700

 cca cac atc aga tca gcc ttg ctt cct gtt tta cat cac aaa tct aaa 2222
 Pro His Ile Arg Ser Ala Leu Leu Pro Val Leu His His Lys Ser Lys
 705 710 715

 aaa gga ccc ccc cgt caa gcc aaa tat gcc att cat tgt atc cat gcg 2270
 Lys Gly Pro Pro Arg Gln Ala Lys Tyr Ala Ile His Cys Ile His Ala
 720 725 730 735

 ata ttt tct agt aaa gag gcc cag ttt gca cag ata ttt gag cct ctg 2318
 Ile Phe Ser Ser Lys Glu Ala Gln Phe Ala Gln Ile Phe Glu Pro Leu
 740 745 750

 cat aag agc cta gat cca agc aac ctg gaa cat ctc ata aca cca ttg 2366
 His Lys Ser Leu Asp Pro Ser Asn Leu Glu His Leu Ile Thr Pro Leu
 755 760 765

 gtt act att ggt cat att gct ctc ctt gca cct gat caa ttt gct gct 2414
 Val Thr Ile Gly His Ile Ala Leu Leu Ala Pro Asp Gln Phe Ala Ala
 770 775 780

 cct ttg aaa tct ttg gta gct act ttc att gtg aaa gat ctt ctc atg 2462
 Pro Leu Lys Ser Leu Val Ala Thr Phe Ile Val Lys Asp Leu Leu Met
 785 790 795

 aat gat cgg ctt cca ggg aaa aag aca act aaa ctt tgg gtt cca gat 2510
 Asn Asp Arg Leu Pro Gly Lys Lys Thr Thr Lys Leu Trp Val Pro Asp
 800 805 810 815

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 Met Val Arg Trp Leu Leu Gly Met Lys Asn Asn His Ser Lys Ser Gly
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 850 855 860

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 Leu Thr Glu Gln Gly Lys Ile Ser Lys Pro Asp Met Ser Arg Leu Arg
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 Leu Ala Ala Gly Ser Ala Ile Val Lys Leu Ala Gln Glu Pro Cys Tyr
 880 885 890 895

 cat gaa atc atc aca tta gaa caa tat cag cta tgt gca tta gct atc 2798

His Glu Ile Ile Thr Leu Glu Gln Tyr Gln Leu Cys Ala Leu Ala Ile
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 Asn Asp Glu Cys Tyr Gln Val Arg Gln Val Phe Ala Gln Lys Leu His
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 Lys Gly Leu Ser Arg Leu Arg Leu Pro Leu Glu Tyr Met Ala Ile Cys
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 Ala Leu Cys Ala Lys Asp Pro Val Lys Glu Arg Arg Ala His Ala Arg
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 Gln Cys Leu Val Lys Asn Ile Asn Val Arg Arg Glu Tyr Leu Lys Gln
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 His Ala Ala Val Ser Glu Lys Leu Leu Ser Leu Leu Pro Glu Tyr Val
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 Val Pro Tyr Thr Ile His Leu Leu Ala His Asp Pro Asp Tyr Val Lys
 995 1000 1005

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B
W
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Gly	Arg	Pro	Ser	Lys	Thr	Pro	Ser	Pro	Ser	Gln	Pro	Lys	Lys	Asn	Val		
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35 40 45
Ser Glu Glu Glu Lys Glu Leu Tyr Leu Asn Leu Ala Leu His Leu Ala
50 55 60
Ser Asp Phe Phe Leu Lys His Pro Asp Lys Asp Val Arg Leu Leu Val
65 70 75 80
Ala Cys Cys Leu Ala Asp Ile Phe Arg Ile Tyr Ala Pro Glu Ala Pro
85 90 95
Tyr Thr Ser Pro Asp Lys Leu Lys Asp Ile Phe Met Phe Ile Thr Arg
100 105 110
Gln Leu Lys Gly Leu Glu Asp Thr Lys Ser Pro Gln Phe Asn Arg Tyr
115 120 125
Phe Tyr Leu Leu Glu Asn Ile Ala Trp Val Lys Ser Tyr Asn Ile Cys
130 135 140
Phe Glu Leu Glu Asp Ser Asn Glu Ile Phe Thr Gln Leu Tyr Arg Thr
145 150 155 160

B
N

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Met Val Asp Leu Met Ser Ser Ile Ile Cys Glu Gly Asp Thr Val Ser
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Gln Glu Leu Leu Asp Thr Val Leu Val Asn Leu Val Pro Ala His Lys
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Asn Leu Asn Lys Gln Ala Tyr Asp Leu Ala Lys Ala Leu Leu Lys Arg
210 215 220
Thr Ala Gln Ala Ile Glu Pro Tyr Ile Thr Asn Phe Phe Asn Gln Val
225 230 235 240
Leu Met Leu Gly Lys Thr Ser Ile Ser Asp Leu Ser Glu His Val Ser
245 250 255
Asp Leu Ile Leu Glu Leu Tyr Asn Ile Asp Ser His Leu Leu Leu Ser
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Val Leu Pro Gln Leu Glu Phe Lys Leu Lys Ser Asn Asp Asn Glu Glu
275 280 285
Arg Leu Gln Val Val Lys Leu Leu Ala Lys Met Phe Gly Ala Lys Asp
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Ser Glu Leu Ala Ser Gln Asn Lys Pro Leu Trp Gln Cys Tyr Leu Gly
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Arg Phe Asn Asp Ile His Val Pro Ile Arg Leu Glu Cys Val Lys Phe
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Ala Ser His Cys Leu Met Asn His Pro Asp Leu Ala Lys Asp Leu Thr
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Tyr Ala Thr Leu Asp Leu Asn Ala Val Lys Ala Leu Asn Glu Met Trp
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